

Abstract of the Disclosure

A typical integrated circuit includes millions of microscopic transistors, resistors, and other components interconnected to define a circuit, for example a memory circuit. Occasionally, one or more of the components are defective and fabricators selectively replace them by activating spare, or redundant, components included within the circuit. One way of activating a redundant component is to rupture an antifuse that effectively connects the redundant component into the circuit. Unfortunately, conventional antifuses have high and/or unstable electrical resistances which compromise circuit performance and discourage their use. Accordingly, the inventors devised an exemplary antifuse structure that includes three normally disconnected conductive elements and a programming mechanism for selectively moving one of the elements to electrically connect the other two. The programming mechanism includes a chemical composition that when heated releases a gas into a chamber to move one element, like a piston, from the bottom of the chamber to contact two elements overhanging the top of the chamber. This embodiment ultimately promises better performance because the element that completes the electrical connection has a relatively low and relatively stable resistance.

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